

CLAIM AMENDMENTS

IN THE CLAIMS

This listing of the claims will replace all prior versions, and listing, of claims in the application or previous response to office action:

1. (Currently Amended) A method for detaching a frozen charge from the inner wall of a grinding pipe mounted rotatably about a horizontal axis of rotation, the frozen charge being formed during a standstill of the grinding pipe and having a center of gravity positioned in a starting position below the horizontal axis of rotation, the method comprising the steps of:

from a starting position in which the center of gravity of the frozen charge is positioned in the starting position below the horizontal axis of rotation, controlling a drive device of the grinding pipe to control the angle of rotation and the speed of rotation of the grinding pipe; and

varying the speed of rotation of the grinding pipe by the drive device such that the varied rotational speed creates detaching forces caused by inertia to act on the frozen charge, the detaching forces created by the varied rotational speed causing the frozen charge to detach from the inner wall of the grinding pipe, wherein a maximum value of the angle of rotation about the starting position is selected smaller than 180°.

2. (Cancelled).

3. (Currently Amended) The method according to claim 1, wherein a maximum value of the angle of rotation about the starting position is selected smaller than or equal to 90° is not exceeded.

4. (Currently Amended) The method according to claim 1, wherein the maximum value of the angle of rotation about the starting position is dependent on the material nature of the frozen charge.

5. (Currently Amended) The method according to claim 1, wherein the angle of rotation about the starting position is set to oscillate about a number of predetermined angles of rotation with the same arithmetic sign one after another.

6. (Currently Amended) The method according to claim 1, wherein the angle of rotation about the starting position is set to oscillate about a number of predetermined angles of rotation with different arithmetic signs one after another.

7. (Currently Amended) The method according to claim 1, wherein the grinding pipe is braked abruptly at least once at a predetermined angle of rotation about the starting position.

8. (Previously Presented) The method according to claim 7, wherein the grinding pipe is braked abruptly to a standstill.

9. (Previously Presented) The method according to claim 1, wherein the same motor is used for detaching the frozen charge as for rotating the grinding pipe during grinding operation.

10. (Previously Presented) The method according to claim 1, wherein the frozen charge is wetted.

11-18. (Previously Cancelled)

19. (Previously Presented) The method according to claim 1, comprising:
controlling the drive device to oscillate the angle of rotation of the grinding pipe about at least one predetermined angle of rotation.

20-21. (Previously Cancelled)

22. (Currently Amended) A method for detaching a frozen charge from the inner wall of a grinding pipe mounted rotatably about a horizontal axis of rotation, the frozen charge being formed during a standstill of the grinding pipe and having a center of gravity positioned in a starting position below the horizontal axis of rotation, the method comprising the steps of:

controlling a drive device of the grinding pipe to control the angle of rotation and the speed of rotation of the grinding pipe; and

controlling the drive device to oscillate the angle of rotation of the grinding pipe about at least one predetermined angle of rotation about the starting position in order to create detaching forces caused by inertia to act on the frozen charge, the detaching forces detaching the frozen charge from the inner wall of the grinding pipe.

23. (Currently Amended) The method according to claim 19, comprising controlling the drive device to oscillate the angle of rotation of the grinding pipe about at least one non-zero angle of rotation as measured from ~~a~~ the starting position of the grinding pipe.

24. (Cancelled).

25. (Currently Amended) The method according to claim 19, wherein during the oscillation of the grinding pipe, a maximum angle of rotation about the starting position of less than 90° is not exceeded.

26. (Currently Amended) The method according to claim 19, further comprising:

determining a maximum angle of rotation based on a material nature of the frozen charge; and

during the oscillation of the grinding pipe, limiting the rotation of the grinding pipe to the determined maximum angle of rotation about the starting position.

27. (Previously Presented) The method according to Claim 19, wherein the angle of rotation is set to oscillate about a number of different predetermined angles of rotation with the same arithmetic sign.

28. (Previously Presented) The method according to Claim 19, wherein the angle of rotation is set to oscillate about a number of different predetermined angles of rotation with different arithmetic signs.

29. (Previously Presented) The method according to Claim 19, wherein the grinding pipe is braked abruptly at least once at a predetermined angle of rotation.

30. (Previously Presented) The method according to Claim 19, wherein the same motor is used for oscillating the angle of rotation of the grinding pipe to detach the frozen charge as for rotating the grinding pipe during a grinding operation.

31. (Previously Cancelled)

32. (Currently Amended) A method for detaching a frozen charge from the inner wall of a grinding pipe mounted rotatably about a horizontal axis of rotation, the frozen charge being formed during a standstill of the grinding pipe and having a center of gravity positioned in a starting position below the horizontal axis of rotation, the method comprising the steps of:

controlling a drive device of the grinding pipe to control the angle of rotation and the speed of rotation of the grinding pipe; and

varying the speed of rotation of the grinding pipe by the drive device such that the varied rotational speed detaches the frozen charge from the inner wall of the grinding pipe, wherein a maximum value of the angle of rotation about the starting position is selected smaller than 180°.

33. (Previously Cancelled)

34. (Previously Presented) The method according to claim 32, comprising controlling the drive device to oscillate the angle of rotation of the grinding pipe about at least one predetermined angle of rotation.

35. (Previously Presented) The method according to claim 32, comprising controlling the drive device to oscillate the angle of rotation of the grinding pipe about at least one non-zero angle of rotation as measured from ~~a~~ the starting position of the grinding pipe.

36. (Cancelled).

37. (Previously Presented) The method according to Claim ~~36~~ 35, comprising controlling the drive device to oscillate the angle of rotation of the grinding pipe about a particular angle of rotation such that during the oscillation about the particular angle of rotation, the grinding pipe does not rotate through the starting position of the grinding pipe.

38. (Previously Presented) The method according to claim 32, comprising controlling the drive device to (a) during a first time period, oscillate the angle of rotation of the grinding pipe about a first non-zero angle of rotation as measured from ~~a~~ the starting position of the grinding pipe, and (b) during a second time period, oscillate the angle of rotation of the grinding pipe about a different, second non-zero angle of rotation as measured from the starting position of the grinding pipe.

39. (Currently Amended) A system for detaching a frozen charge from the inner wall of a grinding pipe, comprising:

a grinding pipe mounted rotatably about a horizontal axis of rotation;
a frozen charge formed on an inner wall of the grinding pipe during a standstill of the grinding pipe, the frozen charge having a center of gravity positioned in a starting position below the horizontal axis of rotation;

means programmed to control for controlling a drive device of the grinding pipe to control the angle of rotation and the speed of rotation of the grinding pipe having the frozen charge formed therein; and

means programmed to vary for varying the speed of rotation of the grinding pipe by the drive device such that the varied rotational speed detaches the frozen charge from the inner wall of the grinding pipe, wherein the means for varying the speed of rotation of the grinding pipe is programmed to provide a maximum value of the angle of rotation about the starting position smaller than 180°.

40. (Previously Presented) The system according to claim 39, wherein the means for controlling are configured to control the drive device to oscillate the angle of rotation of the grinding pipe about at least one predetermined angle of rotation.

41. (Currently Amended) The system according to claim 39, wherein the means for controlling are configured to control the drive device to oscillate the angle of rotation of the grinding pipe about at least one non-zero angle of rotation as measured from a the starting position of the grinding pipe.

42. (Cancelled).

43. (Previously Presented) The system according to Claim 41, wherein the means for controlling are configured to control the drive device to oscillate the angle of rotation of the grinding pipe about a particular angle of rotation such that during the oscillation about the particular angle of rotation, the grinding pipe does not rotate through the starting position of the grinding pipe.

44. (Currently Amended) The system according to claim 39, wherein the means for controlling are configured to control the drive device to (a) during a first time period, oscillate the angle of rotation of the grinding pipe about a first non-zero angle of rotation as measured from ~~a~~ the starting position of the grinding pipe, and (b) during a second time period, oscillate the angle of rotation of the grinding pipe about a different, second non-zero angle of rotation as measured from the starting position of the grinding pipe.

45. (New) A method for detaching a frozen charge from the inner wall of a grinding pipe, comprising the steps of:

controlling a drive device of the grinding pipe to control the angle of rotation and the speed of rotation of the grinding pipe; and

varying the speed of rotation of the grinding pipe by the drive device such that the varied rotational speed creates detaching forces caused by inertia to act on the frozen charge, the detaching forces created by the varied rotational speed causing the frozen charge to detach from the inner wall of the grinding pipe.

wherein the frozen charge is wetted.

46. (New) A system for detaching a frozen charge from the inner wall of a grinding pipe, comprising:

means for controlling a drive device of the grinding pipe to control the angle of rotation and the speed of rotation of the grinding pipe; and

means for varying the speed of rotation of the grinding pipe by the drive device such that the varied rotational speed detaches the frozen charge from the inner wall of the grinding pipe,

wherein the frozen charge is wetted.